



ATTORNEY'S DOCKET NO. 0492611-0510/MIT-10443

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant:	Manalis, et al.	Examiner:	Forman, Betty J
Serial No.:	10/669,883	Art Unit:	1634
Filing Date:	September 23, 2003	Conf. No:	2224
Title:	FABRICATION AND PACKAGING OF SUSPENDED MICROCHANNEL DETECTORS		

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**DECLARATION UNDER 37 C.F.R. § 1.132**

I, Scott Manalis, Ph.D, declare:

1. I received my Bachelors of Science degree in Physics from the University of California, Santa Barbara in 1994. I received my doctorate degree in Applied Physics from Stanford University in 1998.
2. I am currently an associate professor of Biological and Mechanical Engineering for Massachusetts Institute of Technology in Cambridge, Massachusetts, a position I have held since 1999.
3. In 2002, I received the Presidential Early Career Award for Scientists and Engineers from the Department of Defense.
4. I am an author of a number of publications relating to the development of nanofabrication technologies for building molecular-scale devices, the use of microelectromechanical systems ("MEMS") for novel detection schemes, and the application of such devices to biology. A list of some of these publications is attached as an appendix.

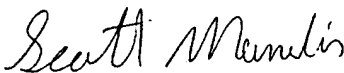
5. As a result of my general background, knowledge, and experience with nano- and microfabricated devices, I offer the following statements and opinions:

A. The term “microfluidics” deals with volumes of fluids appropriately defined by the order of nanoliters or picoliters.

B. Specifically, a microfluidic channel is known to those of ordinary skill in the art to have a height and/or depth in the range of between about a fraction of a micron and about 100 microns.

6. All statements made herein are of my own knowledge are true, and all statements made on information are believe to be true. These statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

  
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Scott Manalis, Ph.D.

Dated: July 26, 2006

## Appendix

A.W. Sparks and S.R. Manalis, "Scanning probe microscopy with inherent disturbance suppression," *Applied Physics Letters*, November 1 (2004).

C.A. Savran, S.M. Knudson, A.D. Ellington, and S.R. Manalis, "Micromechanical detection of proteins using aptamer-based receptor molecules," *Analytical Chemistry*, 76 3194 (2004).

N.C. Loh, M.A. Schmidt, S.R. Manalis, "Sub-10 nm interferometric accelerometer with nano-g resolution," *IEEE Journal of Microelectromechanical Systems*, vol. 11, no. 3, p. 182-187 (2002).

E.B. Cooper, J. Fritz, G. Wiegand, P. Wagner, and S.R. Manalis, "A robust microfabricated field-effect sensor for monitoring molecular adsorption in liquids," *Appl. Phys. Lett.*, vol. 79, no. 23, p. 3875-3877 (2001).

E.B. Cooper, E.R. Post, S. Griffith, J. Levitan, S.R. Manalis, M.A. Schmidt, C.F. Quate, "A high sensitivity micromachined interferometric accelerometer," *Appl. Phys. Lett.*, vol. 76, p. 3316-3318 (2000).

S.R. Manalis, E.B. Cooper, P.F. Indermuhle, P. Kernen, P. Wagner, D.G. Hafeman, S.C. Minne, and C.F. Quate, "Microvolume field-effect pH sensor for the scanning probe microscope," *Appl. Phys. Lett.*, vol. 76, p. 1072-1074 (2000).

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